SEQUENCE LISTING

```
<110> PINTER, JONATHON H.
      KURIHARA, TAKAO
      SLEPTSOVA, IRINA
      BRUENING, ERIC EGON
      ZIEHLER, WILLIAM
      MAKAROV, VLADIMIR L.
<120> IN VITRO DNA IMMORTALIZATION AND WHOLE GENOME
      AMPLIFICATION USING LIBRARIES GENERATED FROM RANDOMLY
      FRAGMENTED DNA
<130> RUBC:021US
<140> UNKNOWN
<141> 2004-03-08
<150> 60/453,071
<151> 2003-03-07
<160> 145
<170> PatentIn Ver. 2.1
<210> 1
<211> 20
<212> DNA
<213> Artificial Sequence
<223> Description of Artificial Sequence: Synthetic
<400> 1
gagtagaatt ctaatatcta
                                                                   20
<210> 2
<211> 20
<212> DNA
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: Synthetic
      Primer
<400> 2
gagatattag aattctactc
                                                                   20
<210> 3
<211> 21
<212> DNA
<213> Artificial Sequence
<223> Description of Artificial Sequence: Synthetic
      Primer
<400> 3
```

```
agtgggattc cgcatgctag t
                                                                    21
<210> 4
<211> 12
<212> DNA
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: Synthetic
<400> 4
taactagcat gc
                                                                   12
<210> 5
<211> 20
<212> DNA
<213> Artificial Sequence
<223> Description of Artificial Sequence: Synthetic
      Primer
<220>
<221> modified_base
<222> (14)..(17)
<223> N = A, C, G OR T/U
<400> 5
ttgcggccgc attnnnnttc
                                                                   20
<210> 6
<211> 22
<212> DNA
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: Synthetic
      Primer
<220>
<221> modified base
<222> (11) .. (16)
<223> N = A, C, G OR T/U
<400> 6
ccgactcgac nnnnnatgt gg
                                                                   22
<210> 7
<211> 21
<212> DNA
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: Synthetic
     Primer
```

```
<220>
<221> modified base
<222> (17)..(21)
<223> N = A, C, G OR T/U
<400> 7
tggtagctct tgatcannnn n
                                                                     21
<210> 8
<211> 20
<212> DNA
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: Synthetic
<400> 8
agagttggta gctcttgatc
                                                                     20
<210> 9
<211> 28
<212> DNA
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: Synthetic
      Primer
<220>
<221> modified base
<222> (23)..(28)
\langle 223 \rangle N = A, C, G OR T/U
<400> 9
gtaatacgac tcactatagg gcnnnnnn
                                                                     28
<210> 10
<211> 22
<212> DNA
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: Synthetic
      Primer
<400> 10
gtaatacgac tcactatagg gc
                                                                     22
<210> 11
<211> 18
<212> DNA
<213> Artificial Sequence
<223> Description of Artificial Sequence: Synthetic
      Primer
```

```
<400> 11
gtaatacgac tcactata
                                                                       18
<210> 12
<211> 14
<212> DNA
<213> Artificial Sequence
<223> Description of Artificial Sequence: Synthetic
<220>
<221> modified_base
<222> (1)..(2)
<223> N = A, C, G OR T/U
<400> 12
nncctatagt gagt
                                                                       14
<210> 13
<211> 15
<212> DNA
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: Synthetic
      Primer
<220>
<221> modified base
<222> (1)..(3)
\langle 223 \rangle N = A, C, G OR T/U
<400> 13
nnncctatag tgagt
                                                                       15
<210> 14
<211> 11
<212> DNA
<213> Artificial Sequence
<223> Description of Artificial Sequence: Synthetic
      Primer
<220>
<221> modified base
<222> (4)..(8)
\langle 223 \rangle N = A, C, G or T/U
<400> 14
gacnnnnngt c
                                                                       11
<210> 15
<211> 12
```

```
<212> DNA
<213> Artificial Sequence
<223> Description of Artificial Sequence: Synthetic
      Primer
<220>
<221> modified_base
<222> (1)..(12)
<223> N = A, C, G OR T/U
<400> 15
nacnnnngta cn
                                                                     12
<210> 16
<211> 12
<212> DNA
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: Synthetic
      Primer
<220>
<221> modified base
<222> (4)..(9)
\langle 223 \rangle N = A, C, G OR T/U
<400> 16
cgannnnnt gc
                                                                     12
<210> 17
<211> 11
<212> DNA
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: Synthetic
      Primer
<220>
<221> modified base
<222> (4)..(8)
<223> N = A, C, G OR T/U
<400> 17
                                                                     11
gccnnnnngg c
<210> 18
<211> 10
<212> DNA
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: Synthetic
      Primer
```

```
<220>
<221> modified base
<222> (4)..(7)
<400> 18
gatnnnnatc
                                                                      10
<210> 19
<211> 11
<212> DNA
<213> Artificial Sequence
<223> Description of Artificial Sequence: Synthetic
      Primer
<220>
<221> modified_base
<222> (3)..(9)
<223> N = A, C, G OR T/U
<400> 19
ccnnnnnng g
                                                                      11
<210> 20
<211> 11
<212> DNA
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: Synthetic
      Primer
<220>
<221> modified_base
<222> (4)..(8)
\langle 223 \rangle N = A, C, G OR T/U
<400> 20
gcannnnntg c
                                                                      11
<210> 21
<211> 12
<212> DNA
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: Synthetic
      Primer
<220>
<221> modified base
<222> (4)..(9)
\langle 223 \rangle N = A, C, G OR T/U
<400> 21
ccannnnnnt gg
                                                                      12
```

```
<210> 22
<211> 12
<212> DNA
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: Synthetic
<220>
<221> modified_base
<222> (4)..(9)
<223> N = A, C, G OR T/U
<400> 22
gacnnnnng tc
                                                                      12
<210> 23
<211> 11
<212> DNA
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: Synthetic
      Primer
<220>
<221> modified_base
<222> (4)..(8)
\langle 223 \rangle N = A, C, G OR T/U
<400> 23
cctnnnnnag g
                                                                      11
<210> 24
<211> 10
<212> DNA
<213> Artificial Sequence
<223> Description of Artificial Sequence: Synthetic
      Primer
<220>
<221> modified_base
<222> (6)..(10)
\langle 223 \rangle N = A, C, G OR T/U
<400> 24
gagtcnnnnn
                                                                      10
<210> 25
<211> 10
<212> DNA
<213> Artificial Sequence
<220>
```

```
<223> Description of Artificial Sequence: Synthetic
      Primer
<220>
<221> modified_base
<222> (3)
<223> Y = C OR T
<220>
<221> modified_base
<222> (4)..(7)
\langle 223 \rangle N = A, C, G OR T/U
<220>
<221> modified_base
<222> (8)
<223> R = A OR G
<400> 25
caynnnnrtg
                                                                       10
<210> 26
<211> 11
<212> DNA
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: Synthetic
      Primer
<220>
<221> modified_base
<222> (3)..(9)
<223> N = A, C, G OR T/U
<400> 26
gcnnnnnng c
                                                                       11
<210> 27
<211> 11
<212> DNA
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: Synthetic
      Primer
<220>
<221> modified_base
<222> (4)..(8)
\langle 223 \rangle N = A, C, G OR T/U
<400> 27
ccannnnntg g
                                                                       11
<210> 28
<211> 10
<212> DNA
```

```
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: Synthetic
<220>
<221> modified_base
<222> (4)..(7)
<223> N = A, C, G OR T/U
<400> 28
gacnnnngtc
                                                                     10
<210> 29
<211> 13
<212> DNA
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: Synthetic
      Primer
<220>
<221> modified base
<222> (5)..(9)
\langle 223 \rangle N = A, C, G OR T/U
<400> 29
ggccnnnng gcc
                                                                     13
<210> 30
<211> 15
<212> DNA
<213> Artificial Sequence
<223> Description of Artificial Sequence: Synthetic
<220>
<221> modified base
<222> (4)..(12)
<223> N = A, C, G OR T/U
<400> 30
ccannnnnn nntgg
                                                                     15
<210> 31
<211> 10
<212> DNA
<213> Artificial Sequence
<223> Description of Artificial Sequence: Synthetic
      Primer
<220>
```

```
<221> modified base
<222> (4)..(7)
<223> N = A, C, G OR T/U
<400> 31
gaannnnttc
                                                                     10
<210> 32
<211> 20
<212> DNA
<213> Artificial Sequence
<223> Description of Artificial Sequence: Synthetic
      Primer
<400> 32
gtaatacgac tcactatagg
                                                                     20
<210> 33
<211> 13
<212> DNA
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: Synthetic
      Primer
<400> 33
cctatagtgc agt
                                                                     13
<210> 34
<211> 21
<212> DNA
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: Synthetic
      Primer
<220>
<221> modified base
<222> (21)
\langle 223 \rangle N = A, C, G OR T/U
<400> 34
gtaatacgac tcactatagg n
                                                                     21
<210> 35
<211> 14
<212> DNA
<213> Artificial Sequence
<223> Description of Artificial Sequence: Synthetic
      Primer
```

```
<220>
<221> modified base
<222> (1)
<223> N = A, C, G OR T/U
<400> 35
ncctatagtg cagt
                                                                     14
<210> 36
<211> 46
<212> DNA
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: Synthetic
      Primer
<400> 36
cctatagtga gtcgtattac ttttttgtaa tacgactcac tatagg
                                                                     46
<210> 37
<211> 20
<212> DNA
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: Synthetic
      Primer
<400> 37
cctatagtga gtcgtattac
                                                                     20
<210> 38
<211> 21
<212> DNA
<213> Artificial Sequence
<223> Description of Artificial Sequence: Synthetic
      Primer
<400> 38
agtaatacga ctcactatag g
                                                                     21
<210> 39
<211> 13
<212> DNA
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: Synthetic
      Primer
<220>
<221> modified_base
<222> (1)
\langle 223 \rangle N = A, C, G OR T/U
```

```
<400> 39
ncctatagtg agt
                                                                     13
<210> 40
<211> 23
<212> DNA
<213> Artificial Sequence
<223> Description of Artificial Sequence: Synthetic
<220>
<221> modified_base
<222> (22)..(23)
<223> N = A, C, G OR T/U
<400> 40
agtaatacga ctcactatag gnn
                                                                     23
<210> 41
<211> 22
<212> DNA
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: Synthetic
      Primer
<220>
<221> modified_base
<222> (22)
<223> N = A, C, G OR T/U
<400> 41
agtaatacga ctcactatag gn
                                                                     22
<210> 42
<211> 16
<212> DNA
<213> Artificial Sequence
<223> Description of Artificial Sequence: Synthetic
      Primer
<220>
<221> modified_base
<222> (1)..(4)
\langle 223 \rangle N = A, C, G OR T/U
<400> 42
nnnncctata gtgagt
                                                                     16
<210> 43
<211> 17
```

```
<212> DNA
<213> Artificial Sequence
<223> Description of Artificial Sequence: Synthetic
      Primer
<220>
<221> modified_base
<222> (1)..(5)
<223> N = A, C, G OR T/U
<400> 43
nnnncctat agtgagt
                                                                     17
<210> 44
<211> 22
<212> DNA
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: Synthetic
      Primer
<220>
<221> modified base
<222> (21)..(22)
\langle 223 \rangle N = A, C, G OR T/U
<400> 44
gtaatacgac tcactatagg nn
                                                                     22
<210> 45
<211> 23
<212> DNA
<213> Artificial Sequence
<223> Description of Artificial Sequence: Synthetic
      Primer
<220>
<221> modified base
<222> (21) . . (23)
<400> 45
gtaatacgac tcactatagg nnn
                                                                     23
<210> 46
<211> 24
<212> DNA
<213> Artificial Sequence
<223> Description of Artificial Sequence: Synthetic
      Primer
<220>
```

```
<221> modified base
<222> (21)..(24)
<223> N = A, C, G OR T/U
<400> 46
gtaatacgac tcactatagg nnnn
                                                                    24
<210> 47
<211> 25
<212> DNA
<213> Artificial Sequence
<223> Description of Artificial Sequence: Synthetic
      Primer
<220>
<221> modified_base
<222> (21)..(25)
<223> N = A, C, G OR T/U
<400> 47
gtaatacgac tcactatagg nnnnn
                                                                    25
<210> 48
<211> 22
<212> DNA
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: Synthetic
      Primer
<400> 48
cgaggcgggt ggatcatgag gt
                                                                    22
<210> 49
<211> 20
<212> DNA
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: Synthetic
      Primer
<400> 49
tctgtcgccc aggccggact
                                                                    20
<210> 50
<211> 28
<212> DNA
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: Synthetic
     Primer
```

<400>	50 cccc gtaatacgac tcactata		28
<210>			
<211>	33		
<212>	DNA		
<213>	Artificial Sequence		
<220>			
<223>	Description of Artificial Sequence: Primer	Synthetic	
<400>	51		
ccccc	cccc ccccgtaat acgactcact ata		33
	5 5		
<210>	52		
<211>	38		
<212>	DNA		
<213>	Artificial Sequence		
<220>			
<223>	Description of Artificial Sequence:	Synthetic	
	Primer	-	
<400>	52		
ccccc	cccc cccccccc gtaatacgac tcactata		38
	5		
<210>	53		
<211>	10		
<212>	DNA		
<213>	Artificial Sequence		
<220>			
<223>	Description of Artificial Sequence:	Synthetic	
	Primer		
<400>	53		
ccccc	cece		10
<210>	54		
<211>	15		
<212>	DNA		
<213>	Artificial Sequence		
<220>			
<223>	Description of Artificial Sequence:	Synthetic	
	Primer		
<400>	54		
ccccc	cccc cccc		15
<210>	55		
<211>	20		
<212>			
<213>	Artificial Sequence		

<220> <223>	Description of Artificial Primer	Sequence:	Synthetic	
<400>	55 ccccc ccccccccc		;	20
<210><211><211><212>	21 DNA			
<220>	Artificial Sequence Description of Artificial Primer	Sequence:	Synthetic	
<400> cccaga	56 aaacc ctgagaccct c		:	21
<210><211><211><212><213>	21			
<220>	Description of Artificial Primer	Sequence:	Synthetic ,	
<400> tgtgc	57 cacaa gttaagatgc t		:	21
	22			
<220> <223>	Description of Artificial Primer	Sequence:	Synthetic	
<400> tgctg	58 tatcg tgcctgctca at		:	22
<210><211><212><213>	21			
<220> <223>	Description of Artificial Primer	Sequence:	Synthetic	
<400> tgccc	59 cactc cccaacattc t		:	21
<210>	60			

```
<211> 21
<212> DNA
<213> Artificial Sequence
<223> Description of Artificial Sequence: Synthetic
      Primer
<400> 60
aacagagcct cagggaccag t
                                                                   21
<210> 61
<211> 21
<212> DNA
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: Synthetic
      Primer
<400> 61
gggctttgtc tgtggttggt a
                                                                   21
<210> 62
<211> 21
<212> DNA
<213> Artificial Sequence
<223> Description of Artificial Sequence: Synthetic
      Primer
<400> 62
tgggctggct gaggtcaaga t
                                                                   21
<210> 63
<211> 21
<212> DNA
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: Synthetic
      Primer
<400> 63
ttttgctccg ctgacatttg g
                                                                   21
<210> 64
<211> 21
<212> DNA
<213> Artificial Sequence
<223> Description of Artificial Sequence: Synthetic
      Primer
<400> 64
```

tgctcctgtc ccttccactt c	2	21
<210> 65 <211> 23 <212> DNA <213> Artificial Sequence		
<220> <223> Description of Artificial Sequence: Primer	Synthetic	
<400> 65 ccttattccc agcagcagta ttc	2	23
<210> 66 <211> 21 <212> DNA <213> Artificial Sequence		
<220> <223> Description of Artificial Sequence: Primer	Synthetic	
<400> 66 tgggaaggga aagagggtac t	:	21
<210> 67 <211> 21 <212> DNA <213> Artificial Sequence		
<220> <223> Description of Artificial Sequence: Primer	Synthetic	
<400> 67 ttgctgtaga tgggctttcg t	:	21
<210> 68 <211> 21 <212> DNA <213> Artificial Sequence		
<220> <223> Description of Artificial Sequence: Primer	Synthetic	
<400> 68 tctgctgggt tgatgatttg g		21
<210> 69 <211> 21 <212> DNA <213> Artificial Sequence		
<220>		

<223>	Description of Artificial Primer	Sequence:	Synthetic	
<400> ggcaca	69 aagca aaagggtgtc t			21
<210><211><212><213>	21			
<220> <223>	Description of Artificial Primer	Sequence:	Synthetic	
<400> ccagca	70 aatca ggaaagcaca a			21
<220>	DNA Artificial Sequence		*	
<400>	Description of Artificial Primer 71 gtctt gttggcatca cc	Sequence:	Synthetic	22
<220>	23	Sequence:	Synthetic	
<400> ttgtt	72 ttgcc tcaccagtca ttt			23
<210><211><211><212><213>	21			
<220> <223>	Description of Artificial Primer	Sequence:	Synthetic	
<400> tcagc	73 aaacc caaagatgtt a			21
<210><211>				

```
<212> DNA
<213> Artificial Sequence
<223> Description of Artificial Sequence: Synthetic
      Primer
<400> 74
ttagtccttt gggcagcacg a
                                                                   21
<210> 75
<211> 21
<212> DNA
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: Synthetic
      Primer
<400> 75
tgtctctgct tctgaaacgg g
                                                                   21
<210> 76
<211> 20
<212> DNA
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: Synthetic
      Primer
<400> 76
actgccaggg tcattgactt
                                                                   20
<210> 77
<211> 18
<212> DNA
<213> Artificial Sequence
<223> Description of Artificial Sequence: Synthetic
      Primer
<400> 77
taagcagcaa ggtctggg
                                                                   18
<210> 78
<211> 23
<212> DNA
<213> Artificial Sequence
<223> Description of Artificial Sequence: Synthetic
      Primer
<400> 78
gtgattgaac aatttggacc cac
                                                                   23
```

```
<210> 79
<211> 23
<212> DNA
<213> Artificial Sequence
<223> Description of Artificial Sequence: Synthetic
      Primer
<400> 79
atggcaacat tccacctagt agc
                                                                   23
<210> 80
<211> 22
<212> DNA
<213> Artificial Sequence
<223> Description of Artificial Sequence: Synthetic
      Primer
<400> 80
ctccgtcatg ataagatgca gt
                                                                   22
<210> 81
<211> 22
<212> DNA
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: Synthetic
      Primer
<400> 81
actgtttggg gtgtgaaagg ac
                                                                   22
<210> 82
<211> 20
<212> DNA
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: Synthetic
      Primer
<400> 82
actaacaacg ccctttgctc
                                                                   20
<210> 83
<211> 23
<212> DNA
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: Synthetic
```

	Primer	
<400> tcagca	83 actcc gtatcttcat ttg	23
<210><211><211><212><213>	23	
<220> <223>	Description of Artificial Sequence: Synthetic Primer	
<400> taaaco	84 Egcta aaacgatagc agc	23
<210><211><211><212><213>	23	
<220> <223>	Description of Artificial Sequence: Synthetic Primer	
<400> tcatgg	85 gtatt agggaagtgg gag	23
<210><211><211><212><213>	23	
	Description of Artificial Sequence: Synthetic Primer	
<400> gggaat	86 Egaaa agaaaaggca ttc	23
<210><211><212><212><213>	25	
<220> <223>	Description of Artificial Sequence: Synthetic Primer	
<400> tctttc	87 CCCTC tacaaccctc taacc	25
<210><211><211><212>	23	

<213>	Artificial Sequence		·	
<220>				
<223>	Description of Artificial Primer	Sequence:	Synthetic	
<400>	88			
cagta	catgg gtcttatgag tac			23
<210>	8.9			
<211>				
<212>				
<213>	Artificial Sequence			
-220				
<220>	Description of Artificial	Seguence.	Synthetic	
(2237	Primer	sequence:	Synchecic	
	•			
<400>				
aatcga	agaac gcacagagca ga .			22
<210>				
<211>	- -			
<212>				
<213>	Artificial Sequence			
<220>				
<223>	Description of Artificial	Sequence:	Synthetic	
	Primer			
<400>	90			
gtctg	gggag taaatgcaac atc			23
<210>	91			
<211>	20			
<212>				
<213>	Artificial Sequence			
<220>				
<223>	Description of Artificial	Sequence:	Synthetic	
	Primer			
<400>	91			
	gatga ccctgcacaa			20
<210>	92			
<211>				
<212>				
<213>	Artificial Sequence			
<220>				
	Description of Artificial	Sequence:	Synthetic	
	Primer		-1	
<400>				٥-
cagcag	gaagc actaccaaag aca			23

```
<210> 93
<211> 23
<212> DNA
<213> Artificial Sequence
<223> Description of Artificial Sequence: Synthetic
<400> 93
ttcacctaga tggaatagcc acc
                                                                   23
<210> 94
<211> 23
<212> DNA
<213> Artificial Sequence
<223> Description of Artificial Sequence: Synthetic
      Primer
<400> 94
gcaagatttt tgcttggctc tat
                                                                   23
<210> 95
<211> 22
<212> DNA
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: Synthetic
      Primer
<400> 95
gaattttggt ttcttgcttt gg
                                                                   22
<210> 96
<211> 23
<212> DNA
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: Synthetic
      Primer
<400> 96
gtcagaagac tgaaaacgaa gcc
                                                                   23
<210> 97
<211> 23
<212> DNA
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: Synthetic
      Primer
```

<400> 97 catctcttga tcatcccagc tct	23
<210> 98 <211> 23 <212> DNA <213> Artificial Sequence	
<220> <223> Description of Artificial Sequence Primer	ce: Synthetic
<400> 98 caccattggt tgatagcaag gtt	23
<210> 99 <211> 20 <212> DNA <213> Artificial Sequence	
<220> <223> Description of Artificial Sequence Primer	ce: Synthetic
<400> 99 taaacatagc accaaggggc	20
<210> 100 <211> 23 <212> DNA <213> Artificial Sequence	
<220> <223> Description of Artificial Sequence Primer	ce: Synthetic
<400> 100 tcatgtgtgg gtcactaagg atg	23
<210> 101 <211> 20 <212> DNA <213> Artificial Sequence	
<220> <223> Description of Artificial Sequence Primer	ce: Synthetic
<400> 101 cgtctctccc agctaggatg	20
<210> 102 <211> 24 <212> DNA <213> Artificial Sequence	

<220> <223>	Description of Artificial Primer	Sequence:	Synthetic	
<400> ctttt	102 ccaca gaactggtgt cagg			24
<210><211><211><212><213>	20			
<220> <223>	Description of Artificial Primer	Sequence:	Synthetic	
<400> acccaç	103 gettt cagtgaagga			20
<210><211><211><212><213>	20			
<220> <223>	Description of Artificial Primer	Sequence:	Synthetic	
<400> aatcaa	104 aaagg ccaacagtgg			20
<210><211><211><212><213>	18			
<220> <223>	Description of Artificial Primer	Sequence:	Synthetic	
<400> actggo	105 etgag ggagcatg			18
<210><211><211><212><213>	21			
<220> <223>	Description of Artificial Primer	Sequence:	Synthetic	
<400>	106 gtaac ceeettgage e			21

```
<210> 107
<211> 20
<212> DNA
<213> Artificial Sequence
<223> Description of Artificial Sequence: Synthetic
      Primer
<400> 107
tattgaccac atgaccccct
                                                                   20
<210> 108
<211> 21
<212> DNA
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: Synthetic
      Primer
<400> 108
ttgggtgatg tcttcacatg g
                                                                   21
<210> 109
<211> 22
<212> DNA
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: Synthetic
      Primer
<400> 109
gctcaataaa aatagtacgc cc
                                                                   22
<210> 110
<211> 20
<212> DNA
<213> Artificial Sequence
<223> Description of Artificial Sequence: Synthetic
      Primer
<400> 110
ttctcccagc tttgagacgt
                                                                   20
<210> 111
<211> 21
<212> DNA
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: Synthetic
      Primer
```

<400> 111 tttgttactt gctaccctga g	21
<210> 112 <211> 23 <212> DNA <213> Artificial Sequence	
<220> <223> Description of Artificial Sequence: Synthetic Primer	
<400> 112 gaagatgaag tgaactccta tcc	23
<210> 113 <211> 22 <212> DNA <213> Artificial Sequence	
<220> <223> Description of Artificial Sequence: Synthetic Primer	
<400> 113 gaagccttga taacgagagt gg	22
<210> 114 <211> 19 <212> DNA <213> Artificial Sequence	
<220> <223> Description of Artificial Sequence: Synthetic Primer	
<400> 114 atgtttctct ggccccaag	19
<210> 115 <211> 17 <212> DNA <213> Artificial Sequence	
<220> <223> Description of Artificial Sequence: Synthetic Primer	
<400> 115 tggctgccct tcaatac	17
<210> 116 <211> 20 <212> DNA <213> Artificial Sequence	

```
<220>
<223> Description of Artificial Sequence: Synthetic
      Primer
<400> 116
ttgggaaatg tcagtgacca
                                                                    20
<210> 117
<211> 24
<212> DNA
<213> Artificial Sequence
<223> Description of Artificial Sequence: Synthetic
      Primer
<400> 117
tgtggttagg atagcacaag catt
                                                                   24
<210> 118
<211> 22
<212> DNA
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: Synthetic
      Primer
<400> 118
tgcaatttga aggtacgagt ag
                                                                   22
<210> 119
<211> 25
<212> DNA
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: Synthetic
      Primer
<400> 119
tgttaacaat ttgcataaca aaagc
                                                                   25
<210> 120
<211> 24
<212> DNA
<213> Artificial Sequence
<223> Description of Artificial Sequence: Synthetic
      Primer
<400> 120
gcattttctg tcccacaaga tatg
                                                                   24
```

<210> 121

```
<211> 20
<212> DNA
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: Synthetic
      Primer
<400> 121
attgctgtca cagcaccttg
                                                                   20
<210> 122
<211> 21
<212> DNA
<213> Artificial Sequence
<223> Description of Artificial Sequence: Synthetic
      Primer
<400> 122
gcatatccat atctcccgaa t
                                                                   21
<210> 123
<211> 21
<212> DNA
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: Synthetic
      Primer
<400> 123
cagagcactc cagaccatac g
                                                                   21
<210> 124
<211> 21
<212> DNA
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: Synthetic
      Primer
<400> 124
cttcgttatg acccctgctc c
                                                                   21
<210> 125
<211> 22
<212> DNA
<213> Artificial Sequence
<223> Description of Artificial Sequence: Synthetic
      Primer
<400> 125
```

tcccaa	agatg aatggtaaga cg			22
<210><211><212><212><213>	21			
<220> <223>	Description of Artificial : Primer	Sequence:	Synthetic	
<400> tccaat	126 Ectca teggtttaet g			21
<210><211><211><212><213>	21			
<220> <223>	Description of Artificial :	Sequence:	Synthetic	
<400> tccaga	127 agccc agtaaacaac a			21
<210><211><211><212><213>	21			
<220> <223>	Description of Artificial S	Sequence:	Synthetic	
<400> ttactt	128 cage ceacatgett e			21
<210><211><212><212><213>	22			
<220> <223>	Description of Artificial S	Sequence:	Synthetic	
<400> ttccga	129 acata gcgactttgt ag			22
<210><211><212><212><213>	22			
<220>				

<223>	Description of Artificial Primer	Sequence:	Synthetic	
<400> aagga	130 ccaga gataccccac gg			22
<210><211><212><212><213>	23			
<220> <223>	Description of Artificial Primer	Sequence:	Synthetic	
<400> tccaa	131 gaacc aactaagtcc aga			23
<210><211><212><212><213>	23			
<220> <223>	Description of Artificial Primer	Sequence:	Synthetic	
<400> ctaag	132 ggcaa acatagggat caa			23
<210><211><211><212><213>	22			
	Description of Artificial Primer	Sequence:	Synthetic	
<400>	133 Ettga agccactttg ac			22
<210><211><211><212><213>	22			
<220> <223>	Description of Artificial Primer	Sequence:	Synthetic	
<400> gcctc	134 egtca ttggtatttt ct			22
<210>				

<212> <213>	DNA Artificial Sequence			
<220> <223>	Description of Artificial Primer	Sequence:	Synthetic	
<400> tggca	135 acacg gtgctgacct g			21
<210><211><211><212><213>	22			
<220>	Description of Artificial Primer	Sequence:	Synthetic	
<400> atcat	136 gggtt tggcagtaaa gc			22
<210><211><211><212><213>	21			
<220> <223>	Description of Artificial Primer	Sequence:	Synthetic	
<400> agaac	137 cagca aacccagtcc c			21
<210><211><211><212><213>	21			
<220> <223>	Description of Artificial Primer	Sequence:	Synthetic	
<400> gaaag	138 ggtgg atggattgaa a			21
<210><211><211><212><213>	21			
<220> <223>	Description of Artificial Primer	Sequence:	Synthetic	
<400>	139			21

```
<210> 140
<211> 21
<212> DNA
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: Synthetic
      Primer
<400> 140
ccttctgctt ccctgtgacc t
                                                                   21
<210> 141
<211> 21
<212> DNA
<213> Artificial Sequence
<223> Description of Artificial Sequence: Synthetic
<400> 141
tgaaccccac gaggtgacag t
                                                                   21
<210> 142
<211> 22
<212> DNA
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: Synthetic
      Primer
<400> 142
gacattacca gcccctcacc ta
                                                                   22
<210> 143
<211> 22
<212> DNA
<213> Artificial Sequence
<223> Description of Artificial Sequence: Synthetic
      Primer
<400> 143
tccttgacag ttccattcac ca
                                                                   22
<210> 144
<211> 21
<212> DNA
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: Synthetic
```

Primer

<400> 144	
tttgcaggta gctctaggtc a	21
<210> 145	
<211> 22	
<212> DNA	
<213> Artificial Sequence	
1	
<220>	
<223> Description of Artificial Sequence: Synthet	ic
Primer	
<400> 145	
gcggacagag agtaacctcg ga	22
Joggacagag ageaacccg ga	22